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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,462	10/27/2003	Alexander Krymski	M4065.0979/P979	2941

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EXAMINER
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NGUYEN, LINH V

ART UNIT	PAPER NUMBER
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2819

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/693,462

Applicant(s)

KRYMSKI, ALEXANDER

Examiner

Linh V. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 34, 36 - 39 and 44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-30 is/are allowed.
- 6) ☒ Claim(s) 31, 32, 34, 36, 37, 39 and 44 is/are rejected.
- 7) ☒ Claim(s) 33 and 38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This office action is in response to applicant's amendment filed on 01/04/05. Claims 31 – 34, 36 – 39 and 44 have been amended. Claims 40 – 43, 45, 46 and 47 have been canceled. Claims 1 – 34, 36 – 39 and 44 are pending on this application.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 31, 32, 34, 36, 37, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Yakovlev U.S. Patent No. 6,670,904.

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 31, Fig. 2 and 3 of Yakovlev disclose a method for converting an analog signal to a digital word (Col. 3 lines 57 – 58), comprising: measuring a

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magnitude of said analog signal (Col. 3 lines 64 – 65); if said magnitude (Fig. 3 [Vin]) is not greater than a predetermined (Fig. 3 [Vc]; between the fifth and sixth vertical dot-lines of Fig. 3; See Col. 4 lines 48 – 49), mapping said magnitude to a digital word (Fig. 3 [Output Code D5....D0]; See Col. 4 lines 51 – 52) in accordance with a first transfer function (Fig. 3 [Vcmp] from low to high; See Col. 4 lines 49 – 52); and if said magnitude (Fig. 3 [Vin]) is at least equal to said predetermined (Fig. 3 [Vc]; See Col. 4 line 24 - 25), mapping said magnitude to the digital word (Fig. 3 [D11....D6] Col. 4 lines 26 – 28) in accordance with a second transfer function (Fig. 3 [Vcmp] from high to low; Col. 4 lines 25 – 26).

Regarding claim 32, wherein said first transfer function (Fig. 3 [Vcmp] from low to high) maps each magnitude (Fig. 3[Vin]) below said predetermined threshold (Fig. 3 [Vc]) to a corresponding reference signal (Fig.3 [Vfine]) in a linear manner (Fig. 3 disclosing the mapping Vin magnitude below threshold Vc in a straight line graph; wherein straight line graph is a definition of linearity. See Webster Dictionary).

Regarding to claim 34, wherein said second transfer function (Fig. 3 [Vcmp] from high to low) maps each magnitude at least equal to said predetermined threshold (Fig. 3 [Vc]; Col. 4 lines 24 – 25) to corresponding reference signals (Vcoarse, Vfine) in a logarithmic manner (Col. 5 lines 12 – 15 disclosing logarithm manner [2<sup>6</sup>]).

Regarding claim 36, Fig. 2 and 3 of Yakovlev disclose a method for operating an imaging system (col. 1 lines 5 – 6), comprising: receiving an analog pixel signal (Fig. 2 [Vin] from a pixel (Col. 3 lines 35 – 37); converting said analog pixel signal into a digital word (Col. 3 lines 35 – 37), wherein said converting comprises: measuring a magnitude

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of said analog signal (Col. 3 lines 64 – 65); if said magnitude is not greater than a predetermined threshold (Fig. 3 [Vc]; between the fifth and sixth vertical dot-lines of Fig. 3; See Col. 4 lines 48 – 49), mapping said magnitude to a digital word (Fig. 3 [Output Code D5....D0]; See Col. 4 lines 51 – 52) in accordance with a first transfer function (Fig. 3 [Vcmp] from low to high; See Col. 4 lines 49 – 52); and if said magnitude (Fig. 3 [Vin]) is at least equal to said predetermined threshold (Fig. 3 [Vc]; See Col. 4 line 24 - 25), mapping said magnitude to the digital word (Fig. 3 [D11....D6] Col. 4 lines 26 – 28) in accordance with a second transfer function (Fig. 3 [Vcmp] from high to low; Col. 4 lines 25 – 26).

Regarding claim 37, wherein said first transfer function (Fig. 3 [Vcmp] from low to high) maps each magnitude (Fig. 3 [Vin]) below said predetermined threshold (Fig. 3 [Vc]) to a corresponding reference signal (Fig. 3 [Vfine]) in a linear manner (Fig. 3 disclosing the mapping Vin magnitude below threshold Vc in a straight line graph; wherein straight line graph is a definition of linearity. See Webster Dictionary).

Regarding claim 39, wherein said second transfer function (Fig. 3 [Vcmp] from high to low) maps each magnitude at least equal to said predetermined threshold (Fig. 3 [Vc]; Col. 4 lines 24 – 25) to corresponding reference signals (Vcoarse, Vfine) in a logarithmic manner (Col. 5 lines 12 – 15 disclosing logarithm manner [2<sup>6</sup>]).

9. Claim 44 is rejected under 35 U.S.C. 102(e) as being anticipated by Tarnoff et al U.S. Patent No. 6,829,012.

Fig. 5 of Tarnoff et al. discloses of an imaging system comprising: a pixel array (54, 64, 74), an analog to digital converter circuit (12-Bit A-Ds) that receives analog signals (output of 54, 64, 74) from the pixel array and converts the analog signals to digital signals (output of 12-Bit A-Ds) with a variable level of quantization (Red, Green, Blue), said analog to digital convert (12-Bit A-Ds) circuit comprising a linear converter (12-Bit A-Ds; Col. 15 lines 47 - 48), for producing intermediate values (output of 12-Bits A-Ds) from said analog signals, and a processing circuit (Fig. 6 [500]) that remaps value said intermediated values produced by said linear converter (Output of 12 – Bit A- Ds) using mapping table (Fig. 6 [539]. Col. 17 lines 29 - 31).

***Allowable Subject Matter***

10. Claims 33 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior arts fail to teach or suggest a method of transfer function wherein said second transfer function maps a set of non-sequential and increasing magnitudes each at least equal to said predetermined threshold to corresponding reference signals in a linear manner.

11. Claims 1 – 30 are allowed. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 1, 11, and 21, in addition to other elements in the respective claim, the prior art fails to teach or suggest a control circuit for determining the digital word corresponding to the input signal by repeatedly: comparing the

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magnitude of the input signal with the magnitude of a most recently generated reference voltage of said sequence, incrementing said counter, and causing said ramp generator to generate a new one of said sequence until the magnitude of the most recently generated reference voltage of said sequence exceeds the magnitude of said input signal.

### ***Response to Arguments***

12. Applicant's arguments filed 01/04/05 have been fully considered but they are not persuasive.

Under Remarks, on page 18, with respect to claims 31 and 36, applicant argued Yakovlev fails to disclose or suggest the steps of " if said magnitude is not greater than a predetermined threshold, mapping said magnitude to a digital word in accordance with a first transfer function; and if said magnitude is at least equal to said predetermined threshold, mapping said magnitude to the digital word in accordance with a second transfer function". Examiner respectfully disagrees from the following:

Fig. 3 of Yakovlev discloses a magnitude input  $V_{in}$  and a predetermined threshold  $V_c$ , and clearly discloses if said magnitude ( $V_{in}$ ) is not greater than a predetermined threshold (between the fifth and sixth vertical dot-lines disclose  $V_{in}$  less than  $V_c$ ; See Col. 4 lines 48 – 49), mapping said magnitude to a digital word ([Output Code D5....D0]; See Col. 4 lines 51 – 52) in accordance with a first transfer function (Fig. 3 [ $V_{cmp}$ ] from low to high; See Col. 4 lines 49 – 52); and if said magnitude ( $V_{in}$ ) is at least equal to said predetermined (between second and fifth vertical dot lines

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disclose  $V_{in}$  at least equal or greater the predetermine threshold  $V_c$ , See Col. 4 line 24 - 25), mapping said magnitude to the digital word (Output Code [D11....D6] Col. 4 lines 26 – 28) in accordance with a second transfer function (Fig. 3 [ $V_{cmp}$ ] from high to low; Col. 4 lines 25 – 26). Therefore, the previous office action is applying to claims 31, 32, 34, 36, 37, and 39, in this final office action.

Applicant's arguments with respect to claim 44 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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***Contact Information***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (571) 272-1810. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Tokar can be reached at (571) 272-1812. The fax phone numbers for the organization where this application or proceeding is assigned are (703-872-9306) for regular communications and (703-872-9306) for After Final communications.

03/13/05

Linh Van Nguyen

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**Michael Tokar**  
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